

IN THE DRAWINGS:

Please replace Figs. 4(a), 4(b) and 6(a)-(c) with the attached replacement sheets. The attached sheets of drawings include changes to Figs. 4(b) and 6(a)-6(c). Also, attached are annotated sheets showing the changes made to these figures. Fig. 4(b) has been amended to include an additional condenser and path of scattered light consistent with the original disclosure and claims. Figs. 6(a)-6(c) have been amended by labeling each of these figures as “Prior Art”.

Attachment: Replacement Sheets: (2 pages)

Annotated Sheets Showing Changes: (2 pages)

REMARKS

Initially, applicant would like to thank Examiner Nguyen for the helpful and courteous telephonic interview he conducted with applicant's representative on May 26, 2006, in conjunction with Office Action of March 24, 2006. During the interview, features which applicant considers to be distinctive over the applied art of the claimed invention – e.g., inner walls of the flow cell arranged so as not to impede the scattered light from entering an outmost peripheral portion of the condenser – were discussed. However, no agreement was reached.

Upon entry of the present Amendment-B, the claims in the application are claims 1-20, of which claims 1, 12 and 16 are independent. Claims 1-7 and 12-15 have been amended by the present amendment. New claims 16-20 have been added.

The above-identified Office Action has been reviewed, the applied references carefully considered, and the Examiner's comments carefully weighed. In view thereof, the present Amendment-B is submitted. It is contended that by the present amendment, all bases of objections and rejections set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the objections and rejections is respectfully requested.

Amendments

In the amendments: claim 1 has been amended by expressly defining a flow cell having a first passage and a second passage extending continuously from the first passage; and a width of the second passage is greater than a width of the first passage so as not to impede the scattered light from entering an outmost peripheral portion of the condenser.

Claims 2-5 have been amended for consistency, to delete redundant subject matter in view of amendments to claim 1 and/or to distinctly claim the subject matter of the present

invention.

Each of claims 6 and 7 has been amended by defining that the condenser has a condensing angle which is substantially fully utilized for condensing the light scattered by the particles.

Claim 12 has been amended similar to claim 1.

Claims 13-15 have been amended for consistency, to delete redundant subject matter in view of amendments to claim 12, and/or to distinctly claim the subject matter of the present invention.

In the specification, paragraph [016] has been amended to provide express support for the amended claim language, and for the amended Fig. 4(b).

In the drawings, Fig. 4(b) has been amended to include an additional condenser consistent with the original disclosure and claims. Figs. 6(a)-6(c) have been amended by labeling each of these figures as “Prior Art”.

New claims 16-20, of which claim 16 is independent, have been added to define additional aspects of the present invention relating to the embodiments of Fig. 4(b).

Applicant respectfully submits that the above amendments to the specification and claims are fully supported by the original disclosure including claims, and drawings, e.g. Figs. 2(a), 2(b), 4(a), 4(b) and paragraphs [016] and [027], and that no new matter is introduced into the application by the above amendments.

Further, applicant respectfully submits that new claims 16-20, of which claim 16 is independent which includes subject matter of claims 1 and 4, are fully supported by the original disclosure including drawings, and that no new matter is introduced into the application by these new claims.

Preliminary Amendment

In the Office Action (page 2), the Examiner indicated that the Preliminary Amendment filed on March 23, 2005 has been entered.

Applicant's response:

Applicant gratefully acknowledges the Examiner's indication of entering of the Preliminary Amendment.

Drawings

In the Office Action (page 2), the Examiner objected to the drawings because, according to the Examiner, they fail to show claimed subject matter, i.e., 'another condenser' and 'condensers are provided on opposite sides of the flow cell' as required by claims 4 and 15.

Applicant's response:

Applicant has amended Fig. 4(b) by adding 'another condenser', as claimed. Applicant has also amended Figs. 6(a)-6(c) by labeling each of them as "Prior Art". In view of the above amendments, applicant requests reconsideration and withdrawal of objection to the drawings.

Information Disclosure Statement (IDS)

In the Office Action (page 3), the Examiner indicated that the IDS filed on March 23, 2005, which is in compliance with the provision of 37 CFR 1.97, has been entered.

Applicant's response:

Applicant gratefully acknowledges the Examiner's indication of entering of the IDS.

Claim Rejections – 35 USC §103

1. In the Office Action (page 3), the Examiner rejected claims 1, 2, 5, 8-11, 12 and 13 under 35 USC 103(a) as being unpatentable over Matsuda (US 6,465,802) in view of Takayama et al. (US 5,601,983).

Applicant's response:

Upon careful consideration and in light of the above amendments, applicant respectfully traverses such rejections of claims 1, 2, 5, 8-11, 12 and 13, and respectfully submits that the rejection is overcome, and that each of claims 1, 2, 5, 8-11, 12 and 13 is patentably distinct over the disclosures of Matsuda and Takayama et al. for several reasons, including those given below.

Initially, applicant respectfully traverses the Examiner's rejection of claims 1, 2, 5, 8-11, 12 and 13 because neither of the applied references discloses or suggests features of the independent claims.

For example, neither of the applied references teaches or suggests a particle measuring apparatus including a flow cell having a central axis which corresponds to an optical axis of the condenser so as not to impede the scattered light, as required by claims 1 and 12.

In this regard, applicant notes that Matsuda is merely the disadvantageous art as discussed in the Background of the present application, and does not include a flow cell with inner walls arranged - shaped as defined in claims 1, 12, as understood (for example) from comparison of Figures 2(a), 2(b), 4(a), 4(b) to Figures 6(a) – (c) of the present application corresponding to the disadvantageous Background art. On the other hand, Takayama et al. is only cited by the Examiner to disclose condenser lenses, also fails to disclose the claimed structure.

Specifically, the particle measuring apparatus of Matsuda includes a flow cell 1 made of

transparent material bent in an L-shaped cylinder as a whole having a straight flow passage 1a of a predetermined length (and another passage perpendicular to the straight flow passage 1a), a laser light source 2, a collecting optics 3 and a photoelectric transducer element 4. Furthermore, Matsuda discloses that the laser light source 2 irradiates a laser beam La at a predetermined position in the straight flow passage 1a of the flow cell, thereby forming an irradiation or measurement region M; and that within the straight flow passage 1a, an optical axis of the laser light La meets a center axis of the straight flow passage at almost or approximately right angles.

On the other hand, Takayama et al. disclose a specimen measuring apparatus for measuring a specified component in the specimen, having a flow cell 1, and a flow area 1a within the flow cell 1, and – a wavelength selecting filter 10, a light stopper 11, condenser lenses 4a, 4b and a photodetector 5 – all arranged in succession on the optical axis opposite to a lens 3 relative to the flow cell 1, wherein a sample liquid flows in a state surrounded by sheath liquid with a high-speed laminar flow. Also, Takayama et al. disclose that a laser light source 2 is arranged in a direction perpendicular to the flow, and a laser beam emitted therefrom is converted by the lens 3 into a small oval spot to irradiate the flow area; and wavelength of the laser beam excites both the fluorescent substance used for labelling carrier particles and that used for labelling second substance. The Examiner relies on Takayama et al. for their teachings of condenser lenses 4a, 4b.

Additionally, applicant submits that the applied references, considered either singly or in combination, fail to disclose the limitations of dependent claims 2, 5, 8, 10, 11 and 13 for the reasons provided in relation to claims 1 and 12; whereas claim 9 depends from claim 4, which is not rejected over this combination of references such that the rejection of claim 9 is procedurally unfounded.

Thus, the claimed invention as recited in claims 1, 2, 5, 8-11, 12 and 13, is patentably distinct over the applied references, considered either singly or in combination; and the Examiner fails to establish prima facie case of obviousness for rejection of these claims.

Moreover, in order to expedite the prosecution of the application, applicant has amended claims 1, 2, 5, 12 and 13 to further distinguish over the applied references. The independent claims 1 and 12, as amended, clearly distinguish over the applied references, considered either singly or in combination, because each of these claims define a flow cell having a first passage and a second passage extending continuously from the first passage; and a width of the second passage is greater than a width of the first passage; and such limitations are not suggested/taught by the applied reference.

Conversely, as required by amended claims 1 and 12, the flow cell includes at least two passages – a first passage and a second passage extending continuously from the first passage, wherein a width of the second passage is greater than a width of the first passage and these passage are arranged such that they do not impede the scattered light from entering outmost peripheral portion of the condenser, i.e., the condensing angle θ of the condenser is fully utilized for measuring particles in the fluid.

For all of the foregoing reasons, applicant requests reconsideration and withdrawal of the rejection of claims 1, 2, 5, 8-11, 12 and 13 USC § 103(a).

2. In the Office Action (page 4), the Examiner rejected claims 3, 4, 6, 7, 14 and 15 under 35 USC 103(a) as being unpatentable over Matsuda in view of Takayama et al. and in further view of Morgan et al. (US 5,371,585).

Applicant's response:

Upon careful consideration and in light of the above amendments, applicant respectfully traverses such rejections of claims 3, 4, 6, 7, 14 and 15, and respectfully submits that the rejection is overcome, and that each of claims 3, 4, 6, 7, 14 and 15 is patentably distinct over the disclosure of Matsuda in view of Takayama et al. and Morgan et al., for several reasons, including the reasons discussed above regarding claims 1 and 12, which are not overcome by any teaching of Morgan, and because the proposed further modification of Matsuda's system based on select teachings of Takayama et al. and Morgan et al. is improperly based on a suggestion entirely coming from the Examiner (guided by hindsight of applicant's disclosure), rather than from any teaching or suggestion of the references themselves; and the references do not disclose features of the claimed invention.

Relative to the proposed further modification, applicant notes that Morgan et al. disclose a particle detecting instrument, for detecting/measuring corrosive fluid particles, having a sapphire detecting cell 13 including a central section with a square or a rectangular flow path 39 formed therein and cylindrical end sections. The sapphire cell is assembled from four pie-shaped sapphire pieces 21-24 which extend throughout the length of the cell; the sapphire pieces are separated by black gaskets 31-34 which are sandwiched between the opposed faces of the pieces; the pieces are clamped together by shape memory alloy rings which engage the cell in the cylindrical end sections; and each sapphire piece has a highly polished planar interior surfaces 41-44 defining one of the walls of the square/rectangular flow path.

Further, as shown in their Fig. 1, Morgan et al.'s particle detecting instrument includes a laser 11 for directing a beam through the particle detecting cell 13 defining a flow path axially

therethrough the middle of the cell, and optical collectors 14 and 19 disposed perpendicular to the axis of flow path, which is directly contrary to and teaches away from the claimed invention wherein the axis of first passage to correspond to the optical axis of the condenser (claims 1 and 12).

Still further, Morgan et al. disclose a particle measuring instrument wherein a passageway 39 connects with conical passageways 40 extending axially through the end sections 37 and 38 of the cell and partly into the square central section 35 of the cell to provide funnel-shaped passageways leading into and out of the square passageway 39 in the center of the cell. Thus, in Morgan et al., the conical shaped fluid passageways 40 do not widen/extend in direction of optical collectors 14, 19, which is contrary to Matsuda (and present invention).

Based on the actual teachings of the references, one of ordinary skill in the art would not consider it obvious to provide condensers on opposite sides of the flow cell in the particle measurement apparatus of Matsuda, based on the teachings of Takayama et al. and/or Morgan et al. as proposed by the Examiner because there is no suggestion or motivation in any of the references for achieving such combination.

Thus, applicant respectfully submits that the Examiner has failed to establish prima facie obviousness rejection of claims 3, 4, 6, 7, 14 and 15, and that these claims are patentably distinct over the applied references, whether considered either singly or in combination.

Moreover, in order to expedite the prosecution of the application, applicant as amended claims 3, 4, 6, 7, 14 and 15 by the present amendment.

For all of the foregoing reasons, applicant requests reconsideration and withdrawal of the rejection of claims 3, 4, 6, 7, 14 and 15 under 35 USC § 103(a).

Other Matters

The additional references cited by the Examiner on the form PTO-892 included with the Office Action – US Patents: 6,118,536 to Sakamoto et al.; 6,184,983 to Yamaguchi et al.; 5,633,503 to Kosaka; 5,506,673 to Kosaka et al.; 4,906,094 to Ashida; 4,276,475 to Nelson; and 3,710,933 to Fulwyler et al. – have been considered by applicant. Applicant respectfully submits that all of the present claims are patentably distinct over these references, whether considered singly or in combination.

Applicant respectfully submits that new claims 16-20 are patentably distinct over the applied references for reasons similar to those provided in relation to claims 1, 4 and 12.

Conclusion

Applicant respectfully submits that all of the above amendments, including new claims, are fully supported by the original application. Applicant also respectfully submits that the above amendments and new claims do not introduce any new matter into the application.

Based on all of the foregoing, applicant respectfully submits that all of the objections and rejections set forth in the Office Action are overcome, and that as presently amended, all of the pending claims are believed to be allowable over all of the references of record, whether considered singly or in combination. Applicant requests reconsideration and withdrawal of the rejection of record, and allowance of the pending claims.

The application is now believed to be in condition for allowance, and a notice to this effect is earnestly solicited.

A petition for one-month extension of time including fee for same is being concurrently paid via EFS-Web.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that he telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable consideration is respectfully requested.

Respectfully submitted,



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